The Impact of Interest Rate Variability on Banking Stock Performance: Insights into Risk and Responsibility in Modern Finance

Ritu Chaudhary, Dr. Manali Agrawal

rituchoudhary22@nsb.edu.in, manaliagrawal@nsb.edu.in
NSB Academy, Bangalore

Abstract: This research paper delves into the effect of interest rate fluctuations on the performance of banking sector stocks over a comprehensive period of nine years, from 2014 to 2023. Employing quantitative techniques such as regression and correlation analysis, the study aims to determine the strength and nature of the relationship between the Reserve Bank of India's (RBI) repo rate and the Bank Nifty index levels. While conventional financial theory suggests a strong inverse correlation between interest rates and stock market performance, particularly in interest-sensitive sectors like banking, our empirical analysis reveals only a weak correlation. This finding challenges prevailing assumptions and highlights the necessity of incorporating broader macroeconomic indicators in investment and policy decisions. The paper outlines implications for various stakeholders, including investors, market analysts, and policymakers.

Keywords: Interest Rate, Banking Stocks, Repo Rate, Bank Nifty, Regression Analysis, Correlation, Monetary Policy

1.Introduction

Interest rates serve as a foundational element in the formulation of monetary policy and exert substantial influence over economic and financial activities. The banking sector, in particular, is directly impacted by changes in interest rates due to the sector's inherent reliance on interest-based income. An increase in the repo rate, which is the rate at which the RBI lends to commercial banks, usually signals tightening liquidity and can result in higher borrowing costs. Conversely, a reduction in the repo rate is expected to lower borrowing costs and potentially spur credit growth. This study seeks to examine the interplay between interest rate changes and banking stock performance in the Indian context. By analyzing the movement of the Bank Nifty index—a representative of India's banking sector stock performance—against changes in the RBI's repo rate, this paper aims to assess the validity of the presumed correlation between these two variables over a period spanning nine years.

2. Literature Review

A wide array of scholarly literature has explored the relationship between interest rates and stock prices. Traditional economic theory posits a negative relationship: as interest rates increase, stock prices generally decrease, and vice versa. This inverse correlation is particularly significant for financial sectors like banking, where net interest margins are closely tied to interest rates. However, empirical studies often yield mixed results. For example, some research confirms the expected inverse correlation, citing that higher rates reduce future cash flows and hence valuation. Conversely, other studies suggest that banking stocks might not always behave predictably due to mitigating factors such as regulatory changes, credit demand, or global economic events. This study builds on prior literature but offers a focused investigation using recent data from India, a growing market with evolving financial dynamics.

This study explores the theoretical rationale and real-world consequences of negative interest rate policies, particularly their impact on the banking sector. Analyzing data from 3,155 banks across 36 European countries between 2011 and 2018, it finds that banks in countries with negative rates saw a 17.4% drop in net interest margins. The findings, confirmed through robust econometric techniques, show that banks with high liquidity, strong capital, large reserves, and more customer deposits were more adversely affected(Carbó-Valverde et al., 2021).

An increase in the Hong Kong dollar risk premium, reflected by a wider interest rate spread with the US dollar, primarily affects bank profitability through asset quality and net interest margins. Analysis of 1992–2002 data shows that rising risk premiums led to lower net interest margins, as deposit rates responded more sharply than lending rates, while changes in domestic and US interest rates had minimal effect(Peng et al., n.d.).

This study analyzes how interest rates and their volatility affect banking sector development across 12 emerging economies from 1980 to 2014, using multiple indicators. Findings show a positive but diminishing effect of interest rates on banking development and a negative impact of interest rate volatility, highlighting emerging markets' sensitivity to rate fluctuations. Economic growth also supports banking development, though its influence lessens at higher income levels(Tuna & Almahadin, 2021).

This study explores the impact of interest rate uncertainty on banking sector development across 12 emerging economies from 1980 to 2011, using both short- and long-run cointegration models. The results show that interest rate uncertainty significantly influences banking development in most countries, with the effect varying based on each country's unique financial structure(Tuna & Almahadin, 2021).

This study incorporates money and banking into a standard optimizing monetary policy model, calibrated using U.S. data, to explain persistent interest rate differentials. It finds notable gaps—such as over 3% annually between T-bill returns and capital productivity—offering insight into the equity premium puzzle. The model also shows that misjudging rate distinctions or banking shocks can lead to significant policy rate errors(Goodfriend & McCallum, 2007).

This study analyzes the impact of banking sector reforms on interest rate spreads in Ghana from 2008 to 2020 using a dynamic panel data model. It finds that factors like bank size, profitability, GDP, and inflation significantly influence interest rate spreads, highlighting the need for improved macroeconomic conditions, institutional governance, and risk management to enhance banking sector competitiveness.(*Full Article: The Effect of Banking Sector Reforms on Interest Rate Spread: Evidence from Ghana*, n.d.)

This study examines interest margins in major European banking sectors from 1993 to 2000, using an extensive panel dataset and incorporating operating costs and market competition via the Lerner index. Findings suggest that although competitive pressures eased, leading to increased market power, interest margins declined due to reduced interest rate risk, credit risk, and operational expenses(Maudos & Fernández de Guevara, 2004).

This study analyzes around 18,000 observations of euro area banks from 2001 to 2008 and finds strong evidence that low interest rates significantly increase bank risk-taking. The effect varies by country and bank characteristics—being weaker for well-capitalized banks and stronger for those with higher off-balance sheet exposures(Delis & Kouretas, 2011).

This study uses an EGARCH model to analyze how U.S. banks' stock returns respond to changes in interest and foreign exchange rates, addressing limitations in earlier OLS-based methods by accounting for volatility clustering in daily returns. The model fits the data better under a conditional t-distribution, revealing that market returns explain most of the stock return variation, while sensitivity to interest and FX rate changes remains limited. These results highlight the need to consider advanced GARCH-type models for high-frequency financial data(Lael Joseph & Vezos, 2006).

This study develops a multifactor model to examine bank stock returns, incorporating market returns, interest rates, and exchange rate risks. Using a theoretical framework based on international bank behavior, it estimates regression models with both actual and unexpected factor values, including dummy variables for the post-October 1979 period and money-center bank status. The analysis confirms established results for market and interest rate effects, while exchange rate impacts vary based on the time period and whether a bank is a money-center institution(Choi et al., 1992).

This study examines interest rate volatility contagion among Latin American countries in the 1990s using high-frequency data and augmented GARCH models. The findings reveal strong volatility spillover from Mexico to Argentina, but not to Chile. Additionally, Chile showed higher nominal interest rate volatility than Argentina, and interest rate differentials with the U.S. declined gradually in both countries. In Chile, post-capital control periods were marked by more persistent interest rate differentials compared to periods of free capital mobility(Edwards, 1998).

This study examines the impact of exchange rates, interest rates, and their volatilities on stock prices in Pakistan's banking sector using cointegration and causality analysis. Results reveal a significant long-run negative relationship between stock prices and both exchange rate and short-term interest rates, while their volatilities show a positive effect. Bidirectional causality exists between exchange rate and stock prices, and unidirectional causality from interest rates to stock prices. Sensitivity checks confirm the robustness of findings, suggesting volatile exchange and interest rates influence investor decisions in banking stocks(Jawaid & Haq, n.d.).

This study analyzes how changes in interest and exchange rates affect Turkish bank stock returns using both OLS and GARCH models. Findings show that both variables negatively and significantly influence conditional returns, with market returns having a greater impact than interest or exchange rates. Additionally, the volatility of interest and exchange rates emerges as a key driver of stock return volatility in the banking sector(Kasman et al., 2011).

This study uses the GARCH-M model to examine how interest rates and their volatility influence bank stock returns, addressing non-linearity and time-varying volatility. It incorporates changes in monetary policy regimes from 1979 and 1982 into the volatility equation. The findings show that ARCH, GARCH, and volatility feedback effects are statistically significant, with interest rates affecting average returns and their volatility impacting return variability and risk premiums. The persistence of shocks varies by portfolio type and policy period(Elyasiani & Mansur, 1998).

This study examines the relationship between interest rate volatility and Islamic bank financing in Pakistan from 2006 to 2020, using Johansen-Jusiles co-integration tests, VECM, and DCC-GARCH models for robustness. The results reveal significant long- and

short-term linkages, indicating that despite a prohibition on interest, Islamic banks remain exposed to interest rate risk due to benchmarking conventional rates. Corporate financing is found to be particularly sensitive to this risk within the dual banking system.(*Interest Rate Volatility and Financing of Islamic Banks | PLOS One*, n.d.)

3.Methodology This research aims to evaluate the empirical relationship between changes in interest rates and the performance of banking sector stocks. Specifically, the study sets out to assess whether variations in the RBI's repo rate have a significant impact on the Bank Nifty index. The broader goals are fourfold: first, to evaluate the nature of the connection between banking stock trends and interest rate movements; second, to quantify the extent of this effect using regression models; third, to provide a temporal analysis of these changes over a span of nine years; and finally, to derive implications that may guide both investment decisions and monetary policy formulation.

This study is based on secondary data collected from reliable public sources, specifically the official records of the Reserve Bank of India and the National Stock Exchange.
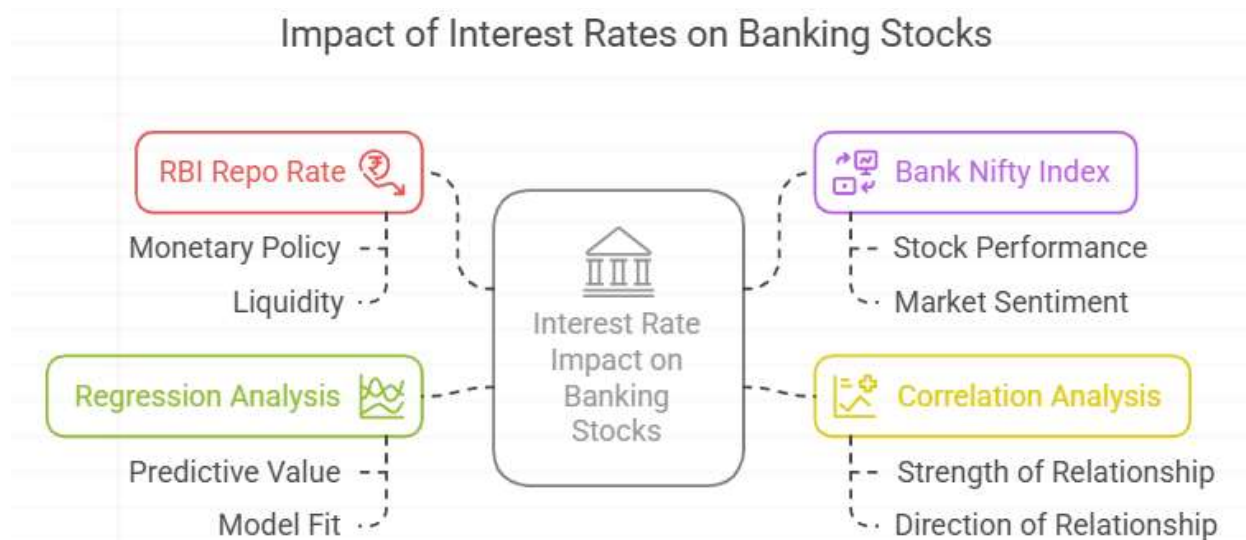
The variables considered are the RBI's repo rate (as the independent variable) and the Bank Nifty index level (as the dependent variable), measured annually from 2014 to 2023. The statistical methods employed include correlation analysis to evaluate the strength and direction of the relationship, and simple linear regression to quantify the predictive value of interest rate changes on banking stock performance. The correlation coefficient measures the degree of association, while the regression equation attempts to model this relationship mathematically. The analysis was carried out using Microsoft Excel and other statistical software to ensure accuracy and clarity in results.

4. Data Analysis

Table 1.1_Historical Repo Rate and Bank Nifty

S.No	Date	Repo Rate (X)	Bank Nifty (Y)
1	28-01-2014	8	10507.6
2	15-01-2015	7.75	19235.65
3	04-03-2015	7.5	19643.9
4	02-06-2015	7.25	17977.3
5	29-09-2015	6.75	17281.2
6	05-04-2016	6.5	16190.6
7	04-08-2016	6.25	19076.55
8	02-08-2017	6	25055.2
9	06-06-2018	6.25	26367.6
10	01-08-2018	6.5	27596.6
11	07-02-2019	6.25	27387.15
12	04-04-2019	6	29904.9
13	06-06-2019	5.75	30857.4
14	07-08-2019	5.4	27702.05

15	06-02-2020	5.15	31304.05
16	27-03-2020	4.4	19969
17	22-05-2020	4	17278.9
18	06-08-2020	4	21642.6
19	09-10-2020	4	23846.8
20	01-05-2022	4.4	35487.4
21	08-06-2022	4.9	34946.15
22	05-08-2022	5.4	37920.6
23	30-09-2022	5.9	38631.95
24	07-12-2022	6.25	43098.7
25	08-02-2023	6.5	41537.65
26	08-06-2023	6.5	43995.25

The computed correlation coefficient was found to be -0.1936, indicating a weak negative correlation between the repo rate and the Bank Nifty index. This implies that while there is some inverse relationship, it is not strong enough to be statistically significant. The regression equation derived from the data is:

$$Y = 36357.77 - 156860.45X$$

Here, Y represents the Bank Nifty index and X represents the repo rate. The R-squared value of 0.0375 suggests that only 3.75% of the variation in the Bank Nifty index can be explained by changes in the repo rate. The adjusted R-squared value, being negative, further supports the conclusion that the model is not a good fit. The p-value associated with this regression model is 0.343, which is well above the common significance threshold of 0.05, indicating that the results are not statistically significant. This undermines the notion that repo rate changes are a primary driver of banking stock performance.

Table: Summary of Regression Results

Statistic	Value
Multiple R	0.1936
R Square	0.0375
Adjusted R Square	-0.0026
Standard Error	9221.51
Observations	26

Graph 1: Trend of Repo Rate vs Bank Nifty (2014–2023)

Repo Rate vs Bank Nifty (2014-2023)
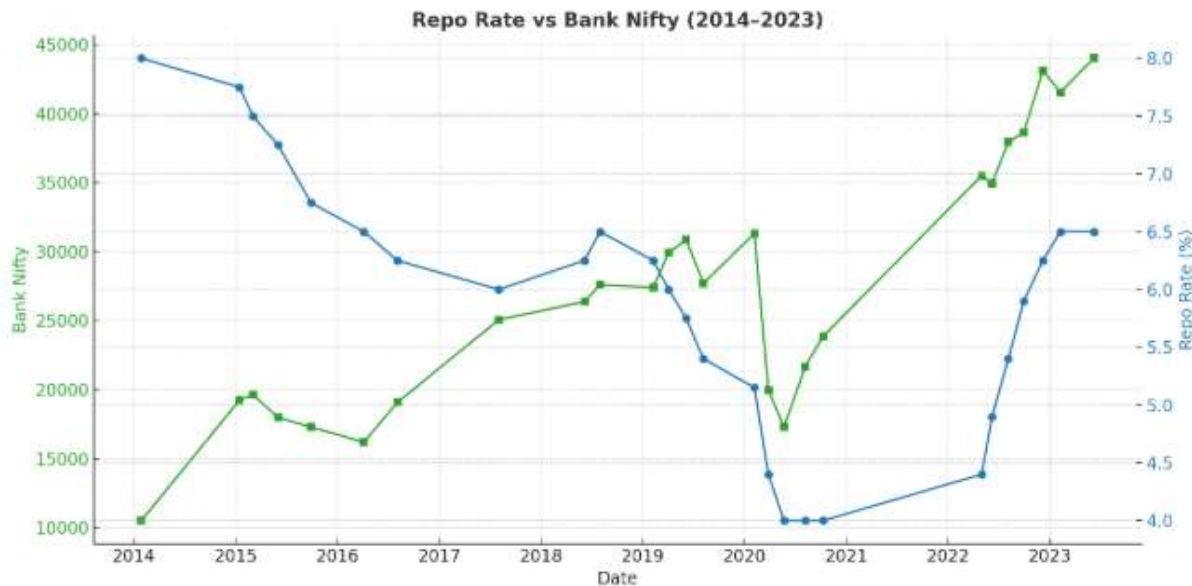
5.Findings

The analysis reveals that there exists only a weak negative relationship between changes in the RBI's repo rate and the performance of the Bank Nifty index. Over the 9-year period studied, the banking index demonstrated upward trends even during phases of declining interest rates, suggesting the presence of other more dominant influencing factors. These may include GDP growth rates, inflation control, fiscal policies, foreign capital inflows, and technological changes within the banking sector. Moreover, the weak R-squared value supports the idea that relying solely on repo rate changes to interpret or predict stock performance is overly simplistic and potentially misleading.

6.Conclusion

The core conclusion of this study is that changes in interest rates, as measured by the RBI's repo rate, do not serve as a strong predictor for banking stock performance in India, at least not in isolation.

Interest rates alone don't drive banking stocks.
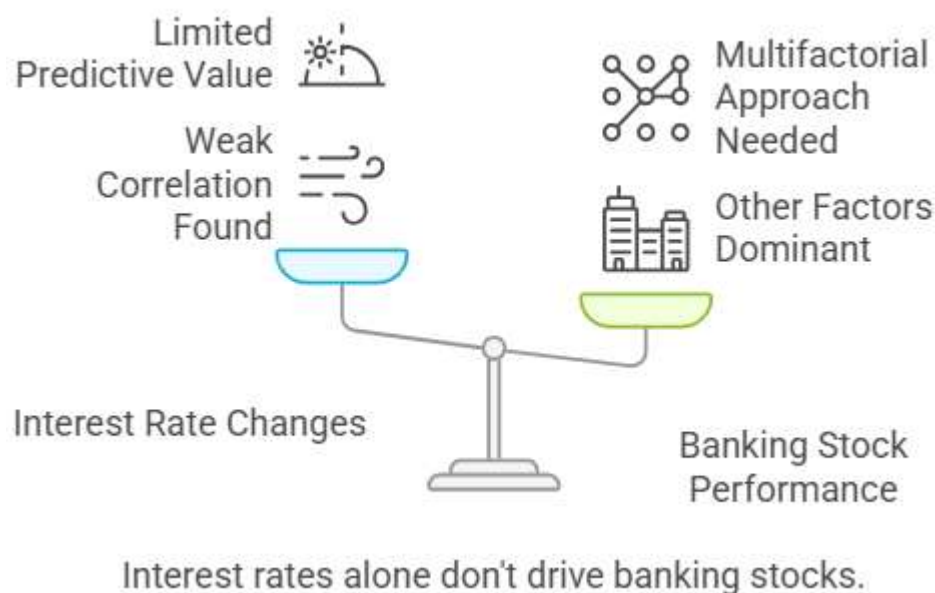
The weak correlation and regression results indicate that other macroeconomic and sector-specific variables must be considered for a holistic understanding. While the repo rate remains a vital monetary policy instrument, its influence on banking equities is diluted

by broader economic forces and market sentiments. Investors and policymakers must therefore adopt a multifactorial approach when evaluating the performance of banking stocks or shaping monetary strategies.

7. Recommendations

For investors, this study recommends diversification and the consideration of multiple economic indicators beyond the repo rate when making portfolio decisions involving banking stocks. Sole reliance on interest rate trends may lead to misinformed judgments. For policymakers, the findings suggest that while repo rate adjustments can steer monetary policy, they are not sufficient by themselves to influence equity markets, particularly the banking sector. A combination of fiscal support, regulatory changes, and macroeconomic stability measures may yield better results. Researchers are encouraged to expand the model to include variables such as inflation rates, GDP growth, and global interest rate trends to derive a more robust understanding.

This study has several limitations that must be acknowledged. Firstly, it focuses exclusively on the Bank Nifty index, thereby limiting its applicability to broader market dynamics or other financial sectors. Secondly, it considers only the repo rate as a policy variable without accounting for other monetary tools such as reverse repo rates, CRR, or SLR. Thirdly, it does not incorporate qualitative events such as political instability, global market volatility, or pandemics like COVID-19, all of which have had significant impacts on financial markets in the given period.

References

Carbó-Valverde, S., Cuadros-Solas ,Pedro J., & and Rodríguez-Fernández, F. (2021). The effects of negative interest rates: A literature review and additional evidence on the performance of the European banking sector. *The European Journal of Finance*, *27*(18), 1908–1938. https://doi.org/10.1080/1351847X.2021.1927784

Choi, J. J., Elyasiani, E., & Kopecky, K. J. (1992). The sensitivity of bank stock returns to market, interest and exchange rate risks. *Journal of Banking & Finance*, *16*(5), 983–1004. https://doi.org/10.1016/0378-4266(92)90036-Y

Delis, M. D., & Kouretas, G. P. (2011). Interest rates and bank risk-taking. *Journal of Banking & Finance*, *35*(4), 840–855. https://doi.org/10.1016/j.jbankfin.2010.09.032

Edwards, S. (1998). *Interest Rate Volatility, Capital Controls, and Contagion* (Working Paper 6756). National Bureau of Economic Research. https://doi.org/10.3386/w6756

Elyasiani, E., & Mansur, I. (1998). Sensitivity of the bank stock returns distribution to changes in the level and volatility of interest rate: A GARCH-M model. *Journal of Banking & Finance*, *22*(5), 535–563. https://doi.org/10.1016/S0378-4266(98)00003-X

Full article: The effect of banking sector reforms on interest rate spread: Evidence from Ghana. (n.d.). Retrieved May 20, 2025, from https://www.tandfonline.com/doi/full/10.1080/23322039.2023.2175463

Goodfriend, M., & McCallum, B. T. (2007). Banking and interest rates in monetary policy analysis: A quantitative exploration. *Journal of Monetary Economics*, *54*(5), 1480–1507. https://doi.org/10.1016/j.jmoneco.2007.06.009

Interest rate volatility and financing of Islamic banks | PLOS One. (n.d.). Retrieved May 20, 2025, from https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0268906

Jawaid, S. T., & Haq, A. U. (n.d.). *Effects of interest rate, exchange rate and their volatilities on stock prices: Evidence from banking industry of Pakistan*.

Kasman, S., Vardar, G., & Tunç, G. (2011). The impact of interest rate and exchange rate volatility on banks' stock returns and volatility: Evidence from Turkey. *Economic Modelling*, *28*(3), 1328–1334. https://doi.org/10.1016/j.econmod.2011.01.015

Lael Joseph, N., & Vezos, P. (2006). The sensitivity of US banks' stock returns to interest rate and exchange rate changes. *Managerial Finance*, *32*(2), 182–199. https://doi.org/10.1108/0307435061064193

Maudos, J., & Fernández de Guevara, J. (2004). Factors explaining the interest margin in the banking sectors of the European Union. *Journal of Banking & Finance*, *28*(9), 2259–2281. https://doi.org/10.1016/j.jbankfin.2003.09.004

Peng, W., Lai, K., & Leung, F. (n.d.). *The Impact of Interest Rate Shocks on the Performance of the Banking Sector*.

Tuna, G., & Almahadin, H. A. (2021). Does interest rate and its volatility affect banking sector development? Empirical evidence from emerging market economies. *Research in International Business and Finance*, *58*, 101436. https://doi.org/10.1016/j.ribaf.2021.101436

Reserve Bank of India. (2014–2023). Monetary Policy Reports.

National Stock Exchange. (2014–2023). Bank Nifty Index Data.

Mishkin, F. S. (2019). The Economics of Money, Banking, and Financial Markets.

Singh, R. (2020). Interest Rate Sensitivity of Indian Sectoral Indices. Journal of Financial Research.

Bansal, S. & Mehta, A. (2021). Monetary Policy and Stock Market Performance in India. International Journal of Economics & Finance.